WHAT IS CLAIMED IS:

1. A method of processing a composite member having a structure in which a first member having a separation layer inside is brought into tight contact with a second member, the composite member having a projecting portion at which a peripheral edge of the first member projects outside a peripheral edge of the second member, the method comprising:

the detection step of detecting the projecting portion of the composite member; and

the separation step of starting separating the composite member from the projecting portion detected in the detection step and then separating the composite member into two members at the separation layer.

2. The method according to claim 1, wherein the composite member has a structure in which the first and second members are brought into tight contact with each other while shifting central positions.

3. The method according to claim 1, wherein the separation step comprises

the pre-separation step of forming a separation start portion by processing the projecting portion, and

the main separation step of starting separating the composite member from the separation start portion and then substantially breaking only the separation layer to separate the composite member into two members at the separation layer.

4. The method according to claim 1, wherein in the detection step, the projecting portion is detected using a noncontact sensor.

5. The method according to claim 1, wherein in the detection step, the projecting portion is detected using a contact sensor.

6. The method according to claim 1, wherein in the detection step, the projecting portion is detected using a sensor arranged on a side of a peripheral edge of the composite member.

7. The method according to claim 1, wherein in the detection step, the projecting portion is detected using a sensor arranged at a position opposing a bonding interface between the first and second members.

8. The method according to claim 1, wherein in the detection step, the projecting portion is detected by detecting a shift amount between the peripheral edge of the first member and the peripheral edge of the second member along an outer periphery of the composite member.

9. The method according to claim 1, wherein in the detection step, the projecting portion is detected by sensing the composite member with an image sensing device and processing a sensed image.

10. The method according to claim 1, wherein in the detection step, the projecting portion is detected by sensing the composite member with an image sensing device while illuminating the composite member so as to

form a shadow at the projecting portion, and processing a sensed image.

11. The method according to claim 1, wherein in the detection step, the projecting portion is detected by sensing a peripheral edge of the composite member with an image sensing device arranged in a tangent direction and processing a sensed image.

12. The method according to claim 1, further comprising the arrangement step of, before execution of the separation step, arranging the composite member to make the projecting portion detected in the detection step match a work position in the separation step.

13. The method according to claim 1, wherein in the detection step, a portion where the peripheral edge of the first member most largely projects is detected as the projecting portion.

14. A thin film manufacturing method including the step of transferring a transfer layer on a surface of a first member to a second member, the method comprising:

the preparation step of bringing the first member having a separation layer inside and the transfer layer on the separation layer into tight contact with the second member to prepare a composite member having a projecting portion at which a peripheral edge of the first member projects outside a peripheral edge of the second member;

the detection step of detecting the projecting

portion of the composite member; and

the separation step of starting separating the composite member from the projecting portion detected in the detection step and then separating the composite member into two members at the separation layer, thereby transferring the transfer layer of the first member to the second member.

15. A processing method of separating a bonded substrate stack, which has a structure in which a transfer layer of a first substrate having a separation layer inside and the transfer layer on the separation layer is brought into tight contact with a second substrate, into two substrates, the bonded substrate stack having a projecting portion at which a peripheral edge of the first substrate projects outside a peripheral edge of the second substrate, the method comprising:

the detection step of detecting the projecting portion of the bonded substrate stack; and

the separation step of starting separating the bonded substrate stack from the projecting portion detected in the detection step and then separating the bonded substrate stack into two substrates at the separation layer.

16. The method according to claim 15, wherein the first and second substrates have the same size, and the bonded substrate stack has a structure in which the

first and second substrates are brought into tight contact with each other while shifting central positions.

17. The method according to claim 15, wherein the separation step comprises

the pre-separation step of forming a separation start portion by processing the projecting portion, and

the main separation step of starting separating the bonded substrate stack from the separation start portion and then substantially breaking only the separation layer to separate the bonded substrate stack into two substrates at the separation layer.

18. The method according to claim 15, wherein in the detection step, the projecting portion is detected using a noncontact sensor.

19. The method according to claim 15, wherein in the detection step, the projecting portion is detected using a contact sensor.

20. The method according to claim 15, wherein in the detection step, the projecting portion is detected using a sensor arranged on a side of a peripheral edge of the bonded substrate stack.

21. The method according to claim 15, wherein in the detection step, the projecting portion is detected using a sensor arranged at a position opposing a bonding interface between the first and second substrates.

22. The method according to claim 15, wherein in the detection step, the projecting portion is detected by detecting a shift amount between the peripheral edge of the first substrate and the peripheral edge of the second substrate along an outer periphery of the bonded substrate stack.

23. The method according to claim 15, wherein in the detection step, the projecting portion is detected by sensing the bonded substrate stack with an image sensing device and processing a signal of a sensed image.

24. The method according to claim 15, wherein in the detection step, the projecting portion is detected by sensing the bonded substrate stack with an image sensing device while illuminating the bonded substrate stack so as to form a shadow at the projecting portion, and processing a signal of a sensed image.

25. The method according to claim 15, wherein in the detection step, the projecting portion is detected by sensing a peripheral edge of the bonded substrate stack with an image sensing device arranged in a tangent direction and processing a signal of a sensed image.

26. The method according to claim 15, further comprising the arrangement step of, before execution of the separation step, arranging the bonded substrate stack to make the projecting portion detected in the detection step match a work position in the separation

step.

27. The method according to claim 15, wherein in the detection step, a portion where the peripheral edge of the first substrate most largely projects is detected as the projecting portion.

28. A thin film manufacturing method including the step of transferring a transfer layer on a surface of a first substrate to a second substrate, the method comprising:

the preparation step of bonding the transfer layer of the first substrate having a separation layer inside and the transfer layer on the separation layer to the second substrate so as to prepare a bonded substrate stack having a projecting portion at which a peripheral edge of the first substrate projects outside a peripheral edge of the second substrate;

the detection step of detecting the projecting portion of the bonded substrate stack; and

the separation step of starting separating the bonded substrate stack from the projecting portion detected in the detection step and then separating the bonded substrate stack at the separation layer, thereby transferring the transfer layer of the first substrate to the second substrate.

29. A thin film manufacturing method comprising:

the preparation step of bonding a surface of a first substrate having a separation layer inside and a

transfer layer on the separation layer to a second substrate to prepare a bonded substrate stack having a projecting portion at which a peripheral edge of the first substrate projects outside a peripheral edge of the second substrate;

the detection step of detecting the projecting portion of the bonded substrate stack; and

the separation step of starting separating the bonded substrate stack from the projecting portion detected in the detection step and then separating the bonded substrate stack at the separation layer, thereby transferring the transfer layer of the first substrate to the second substrate.

30. The method according to claim 29, wherein the transfer layer includes a single-crystal Si layer.

31. The method according to claim 30, wherein the transfer layer has not only the single-crystal Si layer but also an insulating layer on the single-crystal Si layer.

32. The method according to claim 29, wherein in the preparation step, the first and second substrates having the same size are brought into tight contact with each other while shifting central positions to prepare the bonded substrate stack.

33. The method according to claim 29, wherein the separation step comprises

the pre-separation step of forming a separation

start portion by processing the projecting portion, and

the main separation step of starting separating the bonded substrate stack from the separation start portion and then substantially breaking only the separation layer to separate the bonded substrate stack into two substrates at the separation layer.

34. The method according to claim 33, wherein in the pre-separation step, the separation start portion is formed by injecting a fluid to the projecting portion.

35. The method according to claim 33, wherein in the pre-separation step, the separation start portion is formed by inserting a wedge-shaped member to a gap between the first substrate and the second substrate at the projecting portion.

36. The method according to claim 29, wherein in the separation step, the separation start portion is formed on the bonded substrate stack by injecting a fluid to the projecting portion, and then, separation of the bonded substrate stack is continued while changing a position to which the fluid is injected.

37. The method according to claim 29, wherein in the separation step, the bonded substrate stack is separated by inserting a wedge-shaped member to a gap between the first substrate and the second substrate at the projecting portion.

38. The method according to claim 33, wherein the separation start portion is a portion at which the

separation layer has a most fragile structure.

39. The method according to claim 33, wherein the separation start portion is a portion at which the transfer layer is removed and the separation layer under the transfer layer is exposed.

40. The method according to claim 33, wherein at the separation start portion, the separation layer is exposed and a peripheral edge of the separation layer has a recess inward the bonded substrate stack.

41. The method according to claim 29, wherein in the detection step, the projecting portion is detected using a noncontact sensor.

42. The method according to claim 29, wherein in the detection step, the projecting portion is detected using a contact sensor.

43. The method according to claim 29, wherein in the detection step, the projecting portion is detected using a sensor arranged on a side of a peripheral edge of the bonded substrate stack.

44. The method according to claim 29, wherein in the detection step, the projecting portion is detected using a sensor arranged at a position opposing a bonding interface between the first and second substrates.

45. The method according to claim 29, wherein in the detection step, the projecting portion is detected by detecting a shift amount between the peripheral edge of

the first substrate and the peripheral edge of the second substrate along an outer periphery of the bonded substrate stack.

46. The method according to claim 29, wherein in the detection step, the projecting portion is detected by sensing the bonded substrate stack with an image sensing device and processing a signal of a sensed image.

47. The method according to claim 29, wherein in the detection step, the projecting portion is detected by sensing the bonded substrate stack with an image sensing device while illuminating the bonded substrate stack so as to form a shadow at the projecting portion, and processing a signal of a sensed image.

48. The method according to claim 29, wherein in the detection step, the projecting portion is detected by sensing a peripheral edge of the bonded substrate stack with an image sensing device arranged in a tangent direction and processing a sensed image.

49. The method according to claim 29, further comprising the arrangement step of, before execution of the separation step, arranging the bonded substrate stack to make the projecting portion detected in the detection step match a work position in the separation step.

50. The method according to claim 29, wherein in the detection step, a portion where the peripheral edge of

the first substrate most largely projects is detected as the projecting portion.

51. A detection method of detecting a feature portion of a composite member having a structure in which a first member having a separation layer inside is brought into tight contact with a second member, the composite member having, as the feature portion, a portion at which a peripheral edge of the first member projects outside a peripheral edge of the second member, the method comprising:

the shift detection step of detecting a shift between the peripheral edge of the first member and the peripheral edge of the second member along an outer periphery of the composite member; and

the determination step of determining the feature portion on the basis of a detection result in the shift detection step.

52. The method according to claim 51, wherein in the shift detection step, the shift between the peripheral edge of the first member and the peripheral edge of the second member is detected along a perimeter of the composite member.

53. The method according to claim 51, wherein in the shift detection step, the shift is detected using a noncontact sensor.

54. The method according to claim 51, wherein in the shift detection step, the shift is detected using a

contact sensor.

55. The method according to claim 51, wherein in the shift detection step, the shift is detected using a sensor arranged on a side of a peripheral edge of the composite member.

56. The method according to claim 51, wherein in the shift detection step, the shift is detected using a sensor arranged at a position opposing a bonding interface between the first and second members.

57. The method according to claim 51, wherein in the shift detection step, the shift is detected by sensing the composite member with an image sensing device and processing a signal of a sensed image.

58. The method according to claim 51, wherein in the shift detection step, the shift is detected by sensing the composite member with an image sensing device while illuminating the composite member so as to form a shadow at the projecting portion, and processing a signal of a sensed image.

59. The method according to claim 51, wherein in the shift detection step, the shift is detected by sensing a peripheral edge of the composite member with an image sensing device arranged in a tangent direction and processing a signal of a sensed image.

60. The method according to claim 51, wherein in the determination step, a portion where the peripheral edge of the first member most largely projects is determined

as the feature portion.

61. A processing method of positioning, to a predetermined position, a feature portion of a composite member having a structure in which a first member having a separation layer inside is brought into tight contact with a second member, the composite member having, as the feature portion, a portion at which a peripheral edge of the first member projects outside a peripheral edge of the second member, the method comprising:

the shift detection step of detecting a shift between the peripheral edge of the first member and the peripheral edge of the second member along an outer periphery of the composite member;

the determination step of determining the feature portion on the basis of a detection result in the shift detection step; and

the arrangement step of arranging the composite member to make the feature portion determined in the determination step match the predetermined position.

62. A detection apparatus for detecting a feature portion of a composite member having a structure in which a first member having a separation layer inside is brought into tight contact with a second member, the composite member having, as the feature portion, a portion at which a peripheral edge of the first member projects outside a peripheral edge of the second member,

the apparatus comprising:

a shift detection section which detects a shift between the peripheral edge of the first member and the peripheral edge of the second member along an outer periphery of the composite member; and

a determination section which determines the feature portion on the basis of a detection result by said shift detection section.

63. The apparatus according to claim 51, wherein said shift detection section detects the shift between the peripheral edge of the first member and the peripheral edge of the second member along a perimeter of the composite member.

64. The apparatus according to claim 62, wherein said shift detection section detects the shift using a noncontact sensor.

65. The apparatus according to claim 62, wherein said shift detection section detects the shift using a contact sensor.

66. The apparatus according to claim 62, wherein said shift detection section has a sensor arranged on a side of a peripheral edge of the composite member and detects the shift using said sensor.

67. The apparatus according to claim 62, wherein said shift detection section has a sensor arranged at a position opposing a bonding interface between the first and second members and detects the shift using said

sensor.

68. The apparatus according to claim 62, wherein said shift detection section has an image sensing device and detects the shift by sensing the composite member and processing a sensed image.

69. The apparatus according to claim 62, wherein said shift detection section has an illumination device and an image sensing device and detects the shift by sensing the composite member with said image sensing device while illuminating the composite member with said illumination device so as to form a shadow at the projecting portion, and processing a sensed image.

70. The apparatus according to claim 62, wherein said shift detection section has an image sensing device arranged in a tangent direction of a peripheral edge of the composite member and detects the shift by sensing the peripheral edge of the composite member with said image sensing device and processing a sensed image.

71. The apparatus according to claim 62, wherein said determination section determines, as the feature portion, a portion where the peripheral edge of the first member most largely projects.

72. A processing apparatus for positioning, to a predetermined position, a feature portion of a composite member having a structure in which a first member having a separation layer inside is brought into tight contact with a second member, the composite

member having, as the feature portion, a portion at which a peripheral edge of the first member projects outside a peripheral edge of the second member, the apparatus comprising:

a shift detection section which detects a shift between the peripheral edge of the first member and the peripheral edge of the second member along an outer periphery of the composite member;

a determination section which determines the feature portion on the basis of a detection result by said shift detection section; and

an arrangement section which arranges the composite member to make the feature portion determined by said determination section match the predetermined position.

73. A processing apparatus comprising:

a positioning apparatus which positions a feature portion of a composite member having a structure in which a first member having a separation layer inside is brought into tight contact with a second member; and

a processing device which processes the composite member at a work position,

wherein the composite member has, as the feature portion, a portion at which a peripheral edge of the first member projects outside a peripheral edge of the second member, and

said positioning apparatus positions the feature

portion of the composite member to the work position of said processing apparatus.

74. The apparatus according to claim 73, wherein said processing device comprises a separating apparatus for starting separating the composite member from the feature portion and then separating the composite member into two members at the separation layer.

75. A semiconductor device manufacturing method comprising the steps of:

preparing an SOI substrate made using the thin film manufacturing method of claim 29; and

element-isolating an SOI layer of the SOI substrate so to as form a transistor on the element-isolated SOI layer.

76. The method according to claim 75, wherein the transistor is a partial depletion type FET.

77. The method according to claim 75, wherein the transistor is a complete depletion type FET.

78. A semiconductor device having a transistor, which is obtained by the manufacturing method of claim 75.